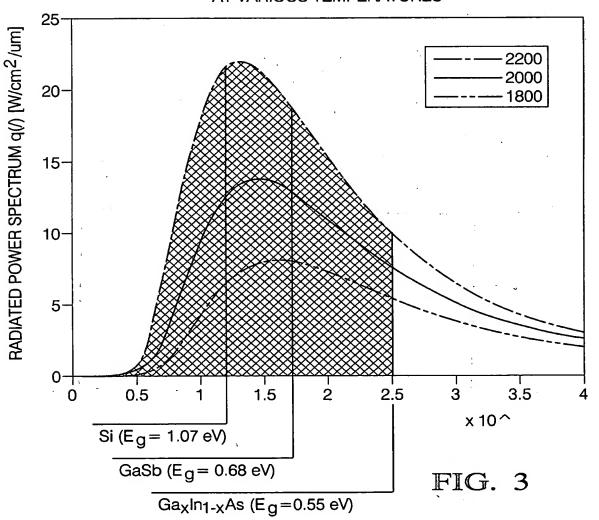


TPV EFFICIENCY AND POWER DENSITY LIMITATIONS AT VARIOUS TEMPERATURES



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MAXIMUM POWER OUTPUT FOR IDEAL TPV SYSTEM WITH GaSb (E g = 0.68 eV)

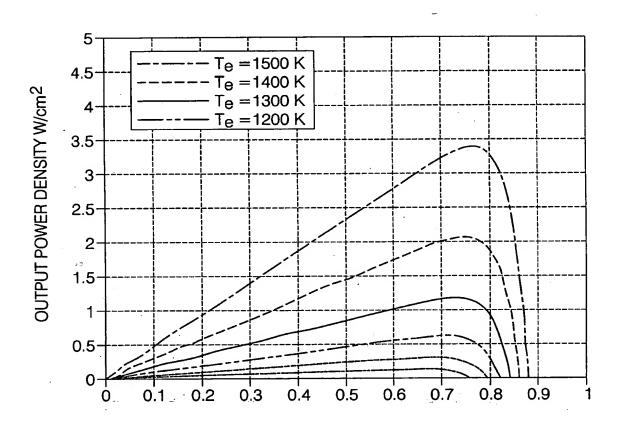


FIG. 4

DP-310113

Delphi Technologies, Inc., Troy, MI

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| | | | _ | | | | | | | |
|--|------------------------|--------------|---------------|----------------|----------|-------|-------|-------|-------|-------|
| THERMO-PHOTO-ELECTRIC CONVERSION EFFICIENCY (15%) POWER DENSITY 4.0 WATTS/cm^2 | THERMO- PHOTO- | ELECTRIC | ACTIVE | AREA cm ^2 | 329 | 311 | 293 | 274 | 256 | 238 |
| | ` - | | COMBINED | EFFICIENCY | 18.78 | 23.29 | 27.80 | 32.31 | 36.83 | 41.34 |
| | INPUT THERMO- | PHOTO- | ELECTRIC | POWER (KW) | 1.32 | 1.24 | 1.17 | 1.10 | 1.02 | 0.95 |
| ASSUMES 65% UTILIZATION OF WASTE HEAT | INPUT THERMAL POWER | AVAILABLE TO | THERMO-PHOTO- | ELECTRIC (KW) | 8.78 | 8.29 | 7.80 | 7.31 | 6.83 | 6.34 |
| | , | WASTE OR | EXHAUST | POWER (kW) | 13.50 | 12.75 | 12.00 | 11.25 | 10.50 | 9.75 |
| <u>.</u> . v | | SOFC | ELECTRIC | 11 | 1.5 | 2.25 | 3.00 | 3.75 | 4.50 | 5.25 |
| | ELECTRIC POWER/ | FUEL POWER | SOFC | EFFICIENCY (%) | 10 | 15 | 20 | 25 | 30 | 35 |
| | | INPUT | FUEL | POWER | 15.00 KW | | | | | |

FIG. 5